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APPLICATION FOR LETTERS PATENT

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SHOTGUN FOREND SLING ADAPTOR AND METHOD OF INSTALLATION

Inventor:

John Tilby

Attorneys:

Frank W. Compagni

Registration No. 40,567

MORRISS O'BRYANT COMPAGNI, P.C.

136 South Main Street, Suite 700

Salt Lake City, Utah 84101

Telephone: (801) 478-0071

Facsimile: (801) 478-0076

SHOTGUN FOREND SLING ADAPTOR AND METHOD OF INSTALLATION

BACKGROUND OF THE INVENTION

[0001] Field of the Invention: This invention relates generally to a shotgun sling adapter, and more specifically to a shotgun sling adapter that fits over the magazine tube of a shotgun and is universally adaptable to numerous models of shotguns regardless of gage or manufacturer.

[0002] Description of Related Art:

[0003] Gun slings are well known in the art. A typical gun sling includes a strap suspended from two points on a rifle allowing the user to carry the rifle over a shoulder. The two points on the rifle typically used for suspending a gun sling are generally located on the bottom of the stock, one near the butt of the rifle and the other near the opposite end of the forend which is typically attaché to the barrel. A typical rifle, however, does not use a pump action forend. Thus, the sling attachment points are stationery relative to the rifle during use.

On some shotguns, however, shells contained in the magazine are ejected and loaded by "pumping" the forend. Thus, attachment of the distal end of a sling to the forend is not practical. Likewise, in other shotguns, such as semi-automatic shotguns, a forend stock is not available for mounting the forend of a sling. As such, manufactures

of shotguns and shotgun accessories have provided various devices to allow attachment of the distal end of a gun sling to a shotgun. Likely the most common type of attachment for the distal end of a sling is a fabric loop that wraps around the barrel of the shotgun. Such a loop, however, can interfere with sighting as the loop necessarily lies between the fore and aft sighting elements.

Other attempts include replacement magazine tube caps that include a swivel stud for attaching a metal ring or other device to which the distal end of the sling can be attached. Such replacement caps, however, are relatively expensive and are model specific. That is, the size and threading pitch of magazine tubes and the caps that are attached thereto vary from manufacturer to manufacturer and from model to model. Thus, in order for a reseller of such a shotgun accessory to provide such replacement caps for a variety of shotguns, the reseller would have to stock all of the desired model specific forend magazine caps.

[0005] Thus, there exists a need in the art for a shotgun forend sling adapter that is universally adaptable to a wide variety of shotgun models, regardless of manufacturer. There is also a need in the art for a shotgun forend sling adapter that does not require modification to the existing components of shotgun. There

is also a need in the art to provide a shotgun forend sling adapter that is relatively easy to manufacture and relatively inexpensive.

BRIEF SUMMARY OF THE INVENTION

[0006] An embodiment of a shotgun forend sling adaptor is disclosed. The shotgun forend sling adaptor may include a grommet formed of a relatively thin and flexible material having an opening therein for fitting over a distal end of a magazine tube of a shotgun and retained by the shotguns existing magazine cap. A sling connector is attached to the adaptor, wherein the sling connector is configured to attach to a distal or forend end of a shotgun sling.

[0007] An embodiment of a shotgun sling is also disclosed. The shotgun sling may include a strap having a first end and a second end. Means for attaching the first end to the stock or butt of the shotgun may include a butt sleeve configured for attachment to the first end of the strap. A shotgun sling adaptor is configured for attachment to the second end of the strap and is configured to fit over the distal end of the magazine tube of the shotgun. The adaptor is formed from a resiliently elastic material having an annular opening sized to fit over a variety of shotgun magazine tube ends. A sling connector

is attachment to the adaptor with the sling connector coupling the adaptor to the gun sling.

[0008] The present invention also includes a method of installing a shotgun sling to a shotgun. The method may include providing a sling and attaching a first end of the sling to the stock or butt end of the shotgun. The method also may include removing the magazine cap from the magazine tube of the shotgun, placing a shotgun sling adaptor in accordance with the principles of the present invention over the end magazine tube and replacing the magazine tube cap to retain the adaptor thereon. The distal end of the sling is then attached to the adaptor to retain the distal end of the sling relative to the magazine tube of the shotgun.

[0009] Additional features and advantages of the invention will be apparent from the detailed description which follows, taken in conjunction with the accompanying drawings, which together illustrate, by way of example, features of embodiments of the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0010] The following drawings illustrate exemplary embodiments for carrying out the invention. Like reference numerals refer to like parts in different views or embodiments of the present invention in the drawings.

[0011] FIG. 1 is a top view of a shotgun forend sling adaptor in accordance with an embodiment of the present invention.

[0012] FIG. 2 is a top view of another embodiment of a shotgun forend sling adaptor having a sling connector in the form of a quick-release buckle in accordance with the present invention.

[0013] FIG. 3 is a perspective view of another embodiment of a forend sling adaptor in accordance with the present invention when used in combination with a gun sling on a shotgun.

[0014] FIG. 4 is a flow chart of a method of installing a shotgun forend adaptor and gun sling on a shotgun in accordance with the principles of the present invention.

[0015] FIGS. 5A and 5B are exploded perspective side views of a shotgun sling adaptor being attached to a magazine tube of a shotgun in accordance with the present invention.

[0016] FIG. 6 is a close-up perspective view of the embodiment of the shotgun forend sling adaptor shown in FIG. 2 having a quick-release buckle gun sling connector attached to a shotgun and a gun sling in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0017] Embodiments of the present invention include a shotgun sling adaptor for attachment to the forend of a shotgun, around the magazine tube and retained by a stock magazine tube end cap and a method of installing such a shotgun sling adaptor. The shotgun sling adaptor and method of installation of the present invention allow a shotgun that does not have the capability for shoulder carrying to be outfitted with a gun sling. The shotgun sling adaptor and method of installation of the shotgun sling adaptor of the present invention do not require the permanent installation of any hardware and can be removed at any time. Reference will now be made to the exemplary embodiments illustrated in the drawings. Specific language will be used herein to describe the exemplary embodiments.

[0018] FIG. 1 is a top view of a shotgun sling adaptor 100 in accordance with an embodiment of the present invention. Shotgun sling adaptor 100 may include a grommet

102 formed of a flexible, resiliently elastic material having an annular opening 104. Shotgun sling adaptor 100 may further include a sling connector 106 configured for attachment to the grommet 102. The sling connector 106 may be configured to attach to a forend end of a gun sling (not shown in FIG. 1).

[0019] The resiliently elastic material from which the grommet 102 is formed may be any one of number of materials, for example and not by way of limitation, rubber, reinforced rubber, gasket material, neoprene, nylon, plastic, fabric such as denim, leather, synthetic leather, injection molded materials and any other suitable material capable of supporting the weight of a shotgun. While the embodiment of a grommet 102 shown in FIG. 1 is generally round or washer-shaped, the external shape of the grommet 102 need not be round and may in fact take any suitable or desired shape consistent with the teachings of the present invention.

[0020] The size of the annular opening 104 is selected to fit around a shotgun magazine tube and, thus, may be configured with a diameter of about the external diameter of a shotgun magazine tube, but less than the diameter of most magazine tube end caps. Thus, so long as the diameter of the opening 104 is large enough to allow the grommet 102

to fit over the end of the magazine tube, yet small enough to be held thereon by the magazine end cap, the adaptor 100 will fit and provide secure attachment of a gun sling to the magazine tube of a shotgun. Thus, the fit of the annular opening 104 in the grommet 102 having size about diameter of about the external diameter of a shotgun magazine barrel or tube may be a snug fit or a sliding fit. By forming the grommet 102 from a resilient yet strong material, such as fiber reinforced rubber, the grommet can slightly stretch if needed to fit over larger magazine tubes while preventing itself from being stretched over the magazine end cap when used on smaller diameter magazine tubes. As such, the shotgun sling adaptor 100 is particularly suited for use in securing one end of a gun sling to a shotgun having a magazine tube with a magazine cap threaded thereon. With the magazine cap removed the annular opening 104 in the grommet 102 may be placed around the magazine tube and slid down along the magazine tube to the base of the threaded end of the magazine tube. The magazine cap is then threaded back onto the magazine tube, thereby sandwiching the adaptor between the magazine cap and the front face of the forend or forestock surrounding the magazine tube. Because of the limited amount of threads available on the end of the magazine tube of any

given shotgun for engaging the magazine end cap, the thickness of the adaptor 100 must be such that the end cap can be sufficiently threaded onto the magazine tube to maintain its engagement with the magazine tube. Of course, if the adapter were too thick, the end cap could not be threaded onto the magazine tube. Thus, the material of the adaptor 100 is important in that it must be sufficiently strong to support the weight of a shotgun and not break when subjected to fatigue, shock or other external forces (e.g., when the gun is snagged by a branch or other obstruction as a hunter is walking through bushes or trees). Thus, because the adaptor of the present invention 100 will be subjected to substantially constant and repetitive flexing during use, a material such as rubber gasket material, leather or other materials known in the art to be less susceptible to fatigue through repetitive bending are highly advantageous. Moreover, because the annular opening 104 of the shotgun sling adaptor 100 has a smaller diameter than the diameter of the magazine cap, the shotgun sling adaptor 100 cannot slide back off of the magazine tube without removing the cap. Thus, the present invention does not require a custom magazine tube cap. The original magazine tube cap may be used consistent with embodiments of the present invention.

[0021] According to an alternative embodiment of the shotgun sling adaptor 100, the annular opening 104 may have radial scoring 114 (only 3 shown for clarity along the annular opening 103 at the 3 o'clock, 4:30 and 6 o'clock positions) or partial radial cuts 114, radiating from a center point in the annular opening 104 and extending out radially beginning at the perimeter of the annular opening 104 to effectively increase the diameter of the annular opening 104. The number of radial cuts 114, their placement along the perimeter of the annular opening 104 and their length are not critical to the invention and are within the knowledge of one skilled in the art. For example and not by way of limitation, the radial scoring 114 may be selected such that the annular opening 104 is configured with a diameter about equal to an inside diameter of a magazine barrel wherein the radial scoring effectively increases the annular opening diameter to about the external diameter of the magazine barrel for which it is to be placed around.

[0022] According to an embodiment of the present invention, the sling connector 106 may include a ring 108 secured in a loop of the resiliently elastic material from which the grommet 102 is formed as illustrated in FIG. 1. The ring may be metal, plastic or any other suitable

material consistent with the present invention. The ring 108 may be secured in a loop of the resiliently elastic material folded over and sewn 112 (as indicated with short dotted line in FIG. 1), Chicago pinned, riveted or glued to the grommet 102. Thus, the grommet 102 includes a sling attachment portion 107 that is integrally formed with the magazine tube attachment portion that includes the annular opening 104. Of course, other suitable means for securing the ring 108 to the grommet 102 to form the sling connector 106 will be readily apparent to one skilled in the art and are thus also considered within the scope of the present invention. According to another embodiment of the present invention, shotgun sling adaptor 100 may also include a cutout relief 110 (as indicated with thick dotted line in FIG. 1) to clear the barrel of a shotgun or to at least reduce the amount of resiliently elastic material of the grommet 102 between a shotgun barrel and magazine tube, thereby easing the installation of the shotgun sling adaptor 100.

[0023] According to another embodiment of the present invention, the sling connector 106 may include a buckle for mating with a strap on one end of the gun sling. Of course, the buckle may be of the pin and hole "belt buckle" variety or of the self-adjusting variety or any other

suitable buckle for mating with a strap on one end of a gun sling.

[0024] FIG. 2 is a top view of another embodiment of a shotgun sling adaptor 200 having a sling connector 106 in the form of a quick-release buckle 206 in accordance with the present invention. The sling connector 106 of shotgun sling adaptor 200 may include one half of a quick-release buckle (male portion 206B or female portion 206A) for mating to the other half of a quick-release buckle 206. For example in FIG. 2 the sling connector 106 comprises a female portion 206A for mating with the male portion 206B (shown detached in FIG. 2) configured for attachment to a gun sling strap. Of course, the sling connector 106 could comprise the male portion 206B for mating with the female portion 206A on a gun sling strap. FIG. 6 is a close-up perspective view of the embodiment of a shotgun sling adaptor 200 of FIG. 2 as shown attached to a shotgun 604 and more particularly to a magazine barrel or tube 602 in between a magazine cap 606 and a forestock 608. Thus, the adaptor 200 is held between the magazine cap 606 and a face 602 of the forend or forestock 608 of the shotgun 604. A sling connector 106, in the form of a quick-release buckle 206, is coupled to the adaptor 200.

[0025] FIG. 3 illustrates a gun sling 300 attached to a shotgun 604 in accordance with the principles of the present invention. Gun sling 300 may include a strap 302 having a first or butt end 302A and a second or forend end 302B. Gun sling 300 may further include a shotgun butt sleeve 304 configured for attachment to the first end 302A of the strap 302. Gun sling 300 includes a shotgun sling adaptor 100, 200 (FIG. 3 illustrates shotgun sling adaptor 200) configured for attachment to the second end 302B of the strap 302.

[0026] The shotgun sling adaptor 100, 200 is configured as described above. Gun sling 300 may further include a shoulder pad 306 attached to the strap 302. The strap may be adjustable in length using means well known in the art. Shotgun butt sleeve 304 may be formed of stretch-fit material for placement around the butt of the shotgun. Of course, other means of attaching the first end of the strap 302 to the shotgun may also be employed, such as a connector attached to the stock of the shotgun 604 as is known in the art. Shotgun butt sleeve 304 may further include recoil padding for added user comfort when firing the shotgun. The shotgun butt sleeve 304 may be formed using materials known to one of ordinary skill in the art and, thus, will not be further elaborated on herein.

[0027] FIG. 4 is a flow chart of a method 400 of installing a gun sling including a shotgun sling adaptor on a shotgun. Method 400 may include providing 402 a shotgun sling adaptor including a grommet formed of a flexible resiliently elastic material having an annular opening and a sling connector configured for attachment to the grommet, wherein the sling connector is configured to attach to an end of a gun sling. Method 400 may further include attaching 404 the sling connector of the shotgun sling adaptor to the end of the gun sling. Method 400 may further include sliding 406 the annular opening over a magazine barrel or tube. According to another embodiment of the present invention, method 400 may further include securing the flexible resiliently elastic material of the shotgun sling adaptor around a magazine barrel by screwing on a magazine cap.

[0028] FIGS. 5A and 5B illustrate another embodiment of a method of installing a gun sling, such as gun sling 300 shown in FIG. 3, including a shotgun sling adaptor 100, 200 on a shotgun 604. In particular, FIG. 5A shows the removal of a magazine cap 606, placement of the shotgun sling adaptor 100, 200 over the distal end of the magazine tube 602. As shown in FIG. 5B, the shotgun sling adaptor 100, 200 is placed around the threaded end 607 of the magazine

tube 607 and the magazine cap 606 is reattached to the end 607 of the magazine tube 602 by rotating the magazine cap 606 and thus threading the magazine cap 606 back onto the magazine tube 602.

[0029] While the foregoing advantages of the present invention are manifested in the illustrated embodiments of the invention, a variety of changes can be made to the configuration, design and construction of the invention to achieve those advantages. Hence, reference herein to specific details of the structure and function of the present invention is by way of example only and not by way of limitation.